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| 09/780,984 | 02/09/2001 | Kurt E. Spears | 10011155-1 | 2245 |

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

| EXAMINER | |
|---|---|
| PHAM, THIERRY L | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2625 | |

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/780,984 | SPEARS ET AL. | |
| | Examiner | Art Unit | |
| | Thierry L. Pham | 2625 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *5/22/06*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-19 and 37-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19, & 37-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

- This action is responsive to the following communication: an Amendment filed on 5/22/06.
- Claims 1-19, & 37-40 are pending, wherein claims 37-40 are newly added; claims 20-36 have been canceled.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 & 38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Subject matter added in claim 1 "the first amplifier to amplify signals provided by the second linear array when the second resolution is being employed" is lack of adequate written support from the original filed specification. Coupler 538 as shown in fig. 6 contains first and second amplifiers 602 and 604 respectively, wherein first amplifier 602 is to amplify signals 546 from photosensor array 200, and wherein second amplifier is to amplify signals 548 from photosensor array 206. In other words, first amplifier 602 only amplifies signals from photosensor array 200 (i.e. first linear array as cited in claim 1) and not photoensor array 206 (i.e. second linear array as cited in claim 1).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-19 & 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suggs (US 6009214), and in view of Hatanaka et al (US 4634886).

Regarding claim 1, Suggs discloses a multiple resolution sensing apparatus (multi-resolution image sensing apparatus 50, fig. 3e, col. 1, lines 5-7) comprising:

- a plurality of first photosensor elements (plurality of photosensors 59 to form photosensor segment 58, fig. 3a) coupled together to form a first linear array (photosensor segment 58, fig. 3a) and having a first length (length as shown from 1p to Np, fig. 3a) and a first resolution (photosensor segment 58 has different resolution from photosensor segment 60, fig. 3b, col. 3, lines 38-45 and col. 5, lines 38-42);
- a plurality of second photosensor elements (plurality of photosensors 61 to form photosensor segment 60, fig. 3b) coupled together to form a second linear array (photosensor segment 61, fig. 3b) and having a second length and a second resolution (photosensor segment 60 has different resolution from photosensor segment 58, col. 3, lines 38-45 and col. 5, lines 42-47);
- a coupler (coupler 54, fig. 3e, col. 44-45) having an output, said coupler coupled to said first linear array and to said second linear array (coupling photosensor segment 58 photosensor segment 60, fig. 3e, col. 44-45);
- a controller (controller is inherently included within a multi-resolution sensing apparatus for sending control signals to selected photosensor segment either automatically or manually, col. 4, lines 22-30 and col. 5, lines 25-30) coupled to said coupler and providing a control signal (control signal 4, lines 23-24) to said coupler such that said output is coupled to said first linear array when said first resolution (send control signal to photosensor segment 58 if first resolution is employed, fig. 3e, col. 4, lines 18-38 and col. 5, lines 48-51) is employed and such that said output is coupled to said second linear array, instead of said first linear array, when said second resolution is employed (send control signal to photosensor segment 60 instead of photosensor segment 58 if second resolution is employed, col. 4, lines 18-38 and col. 5, lines 52-57).

Suggs fails to explicitly teach and/or suggest a coupler having a first amplifier being operative to amplify signals provided by the first linear array and to amplify signals provided by the second linear array.

Hatanaka, in the same field of endeavor of photosensor elements (fig. 3), teaches an well-known example of a coupler (a coupler includes amplifier means 303, switching means 306, output amplifier means 308, fig. 3) having a first amplifier (amplifier means 303 includes plurality of amplifiers, fig. 3, col. 2, lines 47-55 and col. 3, lines 38-50) being operative to amplify signals provided by the first linear array (array CG1, fig. 3) and to amplify signals provided by the second linear array (CG2, fig. 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify image sensing device of Suggs to include a coupler having a first amplifier as taught by Hatanaka because of a following reason: (•) to provide good S/N output characteristics (col. 2, lines 40-45 of Hatanak) via using amplifier means.

Therefore, it would have been obvious to combine Suggs with Hatanaka to obtain the invention as specified in claim 1.

Regarding claim 2, Suggs further discloses the apparatus of claim 1, wherein said first linear array and said second linear array (photosensor segment 58 & 60 are formed on a single array 50, fig. 3e) array are locate on a single substrate.

Regarding claim 3, Suggs further discloses the apparatus of claim 1, wherein said first linear array, said second linear array and said coupler are located on a single substrate (photosensor segment 58 & 60 and coupler 54 are formed on a single array 50, fig. 3e).

Regarding claim 4, Hatanaka further discloses the apparatus of claim 1, wherein said coupler further includes second amplifier (amplifier means 303, fig. 3), and wherein said first linear array, said second linear array and said coupler with said at least one amplifier are located on a single substrate.

Regarding claim 5, Suggs further discloses the apparatus of claim 1, wherein said first length and said second length (segments 58 and segments 60 lengths are same size, fig. 3a-3e) are substantially the same and at least equal to one dimension of an image to be sensed.

Regarding claim 6, Suggs further discloses the apparatus of claim 4, wherein said coupler further comprises a switch (switch between segments 58 and 60, col. 4, lines 18-30) controlled by said controller such that said switch couples said output to said first linear array when said first resolution is employed and such that said switch couples said output to said second linear array when said second resolution is employed (col. 4, lines 18-30).

Regarding claim 7, Hatanaka further discloses the apparatus of claim 6, wherein said first amplifier (fig. 3) is coupled between said switch and said first linear array such that charges detected by said plurality of first photosensor elements are amplified into a first electrical signal; and said second amplifier (fig. 3) coupled between said switch and said second linear array such that charges detected by said plurality of second photosensor elements are amplified into a second electrical signal.

Regarding claim 8, Suggs further discloses the apparatus of claim 1, wherein said first linear array and said second linear array detect only a first color (i.e. red, col. 1, lines 20-22) of light.

Regarding claim 9, Suggs further discloses the apparatus of claim 1, further comprising: a plurality of third photosensor elements (plurality of photosensors 59 to form segment 58, fig. 3c) coupled together to form a third linear array and having a third length and said first resolution (segment 58 of array 50, see right hand side, fig. 3e); a plurality of fourth photosensor elements (plurality of photosensors 61 to form

photosensor segment 60, fig. 3b) coupled together to form a fourth linear array and having a fourth length and said second resolution (segment 60 of array 50, see right hand side, fig. 3e); a second coupler having an second output, said second coupler coupled to said third linear array and to said fourth linear array; a plurality of fifth photosensor elements coupled together to form a fifth linear array and having a fifth length and said first resolution; a plurality of sixth photosensor elements coupled together to form a sixth linear array and having a sixth length and said second resolution; a third coupler having a third output, said coupler coupled to said first linear array and to said second linear array, wherein said controller is coupled to said second coupler and said third coupler, and wherein said controller provides said control signal to said second coupler so that said second output is coupled to said third linear array when said first resolution is employed and so that said second output is coupled to said fourth linear array when said second resolution is employed, and wherein said controller provides said control signal to said third coupler so that said third output is coupled to said fifth linear array when said first resolution is employed and so that said third output is coupled to said sixth linear array when said second resolution is employed. Array 50 as shown in fig. 3e contains plurality of segments 58, segments 60.

Regarding claim 10, Suggs further discloses the apparatus of claim 9, wherein said first linear array and said second linear array detect a first color of light, wherein said third linear array and said fourth linear array detect a second color of light, and wherein said fifth linear array and said sixth linear array detect a third color of light (RGB, 1, lines 20-25, it is well known that any arrays can be filtered to receive specific lights, for example, segments 58 can be filtered to receive red and segment 60 can be filtered to receive blue, and etc).

Regarding claim 11, Suggs further discloses the apparatus of claim 9, wherein said first linear array, said second linear array, said third linear array, said fourth linear array, said fifth linear array and said sixth linear array are located on a single substrate

(plurality of different photosensors segments are located on a single array substrate 50, fig. 3e).

Regarding claim 12, Suggs further discloses the apparatus as in claim 11, wherein said first length, said second length, said third length, said fourth length, said fifth length and said sixth length are substantially the same (all segments are same size, fig. 3a-3e) and at least equal to one dimension of an image to be sensed.

Regarding claim 13, Suggs further discloses the apparatus as in claim 1, further comprising a plurality of third photosensor elements (plurality of photosenosrs 63, to form segment 62, fig. 3c) coupled together to form a third linear array and having a third length and a third resolution (photosensor segment 62 has different resolution from photosensor segment 58 and 60, col. 3, lines 38-45 and col. 6, lines 5-8), said third linear array coupled to said coupler and wherein said controller providing a control signal to said coupler such that said output is coupled to said third linear array when said third resolution is employed.

Regarding claim 14, Suggs further discloses the apparatus of claim 12, wherein said first linear array, said second linear array, said third linear array and said coupler are located on a single substrate (segments 58, 60, and 62 are formed on a single array substrate 50, fig. 3e).

Regarding claim 15, Suggs further discloses the apparatus of claim 12, wherein said first length, said second length and said third length are substantially the same (all segments are same size, fig. 3a-3e) and at least equal to one dimension of an image to be sensed.

Regarding claim 16, Suggs further the apparatus of claim 15, wherein said coupler further comprises a third amplifier coupled to said third linear array such that changes

detected by said plurality of third photosensor elements are amplified (amplification, col. 3, lines 24-26) into a third electrical signal.

Regarding claim 17, Suggs further discloses the apparatus of claim 16, wherein said first linear array, said second linear array and said third linear array detect a first color of light (i.e. red, col. 1, lines 20-22).

Regarding claim 18, Suggs further discloses the apparatus of claim 13, wherein said first resolution corresponds to said first linear array having substantially 300 of said first photosensitive elements (segment 58 have plurality of photosenosrs ranging 1-to-N, fig. 3e), wherein said second resolution corresponds to said second linear array having substantially 600 of said second photosensitive elements, and wherein said third resolution corresponds to said third linear array having substantially 2400 of said third photosensitive elements.

Regarding claim 19, Suggs further discloses the apparatus of claim 18, wherein said third linear array is comprised of two rows, each row having substantially 1200 of said third photosensitive elements (segment 62 have plurality of photosenosrs ranging 1-to-N, fig. 3e).

Regarding claim 37, Suggs discloses a multiple resolution sensing apparatus (multi-resolution image sensing apparatus 50, fig. 3e, col. 1, lines 5-7) comprising:

- a plurality of first photosensor elements (plurality of photosensors 59 to form photosensor segment 58, fig. 3a) coupled together to form a first linear array (photosensor segment 58, fig. 3a) and having a first length (length as shown from 1p to Np, fig. 3a) and a first resolution (photosensor segment 58 has different resolution from photosensor segment 60, fig. 3b, col. 3, lines 38-45 and col. 5, lines 38-42);
- a plurality of second photosensor elements (plurality of photosensors 61 to form photosensor segment 60, fig. 3b) coupled together to form a second linear array (photosensor segment 61, fig. 3b) and having a second length and a second resolution

(photosensor segment 60 has different resolution from photosensor segment 58, col. 3, lines 38-45 and col. 5, lines 42-47);

- a coupler (coupler 54, fig. 3e, col. 44-45) having an output, said coupler coupled to said first linear array and to said second linear array (coupling photosensor segment 58 photosensor segment 60, fig. 3e, col. 44-45);
- a controller (controller is inherently included within a multi-resolution sensing apparatus for sending control signals to selected photosensor segment either automatically or manually, col. 4, lines 22-30 and col. 5, lines 25-30) coupled to said coupler and providing a control signal (control signal 4, lines 23-24) to said coupler such that said output is coupled to said first linear array when said first resolution (send control signal to photosensor segment 58 if first resolution is employed, fig. 3e, col. 4, lines 18-38 and col. 5, lines 48-51) is employed and such that said output is coupled to said second linear array, instead of said first linear array, when said second resolution is employed (send control signal to photosensor segment 60 instead of photosensor segment 58 if second resolution is employed, col. 4, lines 18-38 and col. 5, lines 52-57); and
- wherein said coupler, said first linear array, and said second linear array are located on a single substrate (segments 58, 60, and 62 are formed on a single array substrate 50, fig. 3e).

Suggs fails to explicitly teach and/or suggest a coupler having a first amplifier.

Hatanaka, in the same field of endeavor of photosensor elements (fig. 3), teaches an well-known example of a coupler (a coupler includes amplifier means 303, switching means 306, output amplifier means 308, fig. 3) having a first amplifier (amplifier means 303 include plurality of amplifiers, fig. 3, col. 2, lines 47-55 and col. 3, lines 38-50, also, using amplifiers to generate output signals from photosensor elements are well known in the art)

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify image sensing device of Suggs to include a coupler having a first amplifier as taught by Hatanaka because of a following reason: (•) to provide good S/N output characteristics (col. 2, lines 40-45 of Hatanak) via using amplifier means.

Therefore, it would have been obvious to combine Suggs with Hatanaka to obtain the invention as specified in claim 37.

Regarding claim 38, Hatanaka further teaches the apparatus of claim 37, wherein said amplifier is operative to amplify signals (amplifier means 303, fig. 3) provided by the first linear array when the first resolution is being employed and to amplify signals (amplifier means 303, fig. 3) provided by the second linear array when the second resolution is being employed.

Regarding claim 39, Suggs further discloses the apparatus of claim 37, further comprising: a plurality of third photosensor elements (plurality of photosensors 59 to form segment 58, fig. 3c) coupled together to form a third linear array and having a third length and said first resolution (segment 58 of array 50, see right hand side, fig. 3e); a plurality of fourth photosensor elements (plurality of photosensors 61 to form photosensor segment 60, fig. 3b) coupled together to form a fourth linear array and having a fourth length and said second resolution (segment 60 of array 50, see right hand side, fig. 3e); a second coupler having an second output, said second coupler coupled to said third linear array and to said fourth linear array; a plurality of fifth photosensor elements coupled together to form a fifth linear array and having a fifth length and said first resolution; a plurality of sixth photosensor elements coupled together to form a sixth linear array and having a sixth length and said second resolution; a third coupler having a third output, said coupler coupled to said first linear array and to said second linear array, wherein said controller is coupled to said second coupler and said third coupler, and wherein said controller provides said control signal to said second coupler so that said second output is coupled to said third linear array when said first resolution is employed and so that said second output is coupled to said fourth linear array when said second resolution is employed, and wherein said controller provides said control signal to said third coupler so that said third output is coupled to said fifth linear array when said first resolution is employed and so that said third output is coupled to said sixth linear array

when said second resolution is employed. Array 50 as shown in fig. 3e contains plurality of segments 58, segments 60.

Regarding claim 40, Suggs further discloses the apparatus of claim 1, wherein said first linear array, said second linear array and said third linear array detect a first color of light (i.e. red, col. 1, lines 20-22).

### *Response to Arguments*

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection due to newly added features/limitations.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 5898509 to Bianchi et al teaches an example of amplifier for amplifying signals generated by plurality of photosensor elements.
- US 5874993 to Ciccarelli et al teaches an example of amplifier for amplifying signals generated by plurality of photosensor elements.
- US 5285293 to Webb et al teaches an example of amplifier for amplifying signals generated by plurality of photosensor elements.
- US 4559452 to Igaki et al teaches an example of amplifier for amplifying signals generated by plurality of photosensor elements.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L. Pham whose telephone number is (571) 272-7439. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thierry L. Pham

GABRIEL GARCIA
PRIMARY EXAMINER